Comparisons of Job Characteristics

Focus Occupation: Computer Software Engineers, Systems Software (15-1032)
Associated Occupation: Computer Hardware Engineers (17-2061)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge — Similarity of Focus Occupation to Associated Occupation: 95

Focus Occupation: Computer Software Engineers, Systems Software (15-1032)
Associated Occupation: Computer Hardware Engineers (17-2061)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Computers and Electronics	8.4	22.7	23.1	0	Current knowledge level may be sufficient
Engineering and Technology	5.7	17.2	14.6	<	Expanded education and/or training may be required
Design	5.2	11.7	10.9	0	Current knowledge level may be sufficient
Telecommunications	3.9	11.6	8.3	<<	Extensive education and/or training may be required
Communications and Media	5.3	10.2	6.8	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills — Similarity of Focus Occupation to Associated Occupation: 77

Focus Occupation: Computer Software Engineers, Systems Software (15-1032)
Associated Occupation: Computer Hardware Engineers (17-2061)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Complex Problem Solving	9.1	12.6	11.9	0	Current skill level may be sufficient
Active Learning	8.7	12.0	10.7	<	A higher skill level may be required
Operations Analysis	5.0	10.5	12.0	>	Skill level is likely sufficient
Science	4.5	9.8	8.7	<	A higher skill level may be required
Systems Evaluation	6.4	9.8	10.7	0	Current skill level may be sufficient
Troubleshooting	4.5	8.3	4.1	<<	Extensive development of skills in this area may be required
Programming	2.2	6.1	12.6	>>	Skill level is likely more than sufficient

The maximum possible rating is 25.

Abilities — Similarity of Focus Occupation to Associated Occupation: 98

Focus Occupation: Computer Software Engineers, Systems Software (15-1032)
Associated Occupation: Computer Hardware Engineers (17-2061)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Oral Comprehension	12.5	15.3	14.5	0	Current ability level may be sufficient
Deductive Reasoning	10.6	14.5	12.6	<	Some improvement in abilities may be required
Written Comprehension	11.0	14.2	13.8	0	Current ability level may be sufficient
Inductive Reasoning	10.2	13.6	11.8	<	Some improvement in abilities may be required
Problem Sensitivity	11.1	13.6	12.2	<	Some improvement in abilities may be required
Written Expression	9.8	12.8	12.3	0	Current ability level may be sufficient
Information Ordering	9.9	11.4	11.4	0	Current ability level may be sufficient

The maximum possible rating is 25.

Activities that Both Occupations Have in Common — Similarity of Focus Occupation to Associated Occupation: 93

Focus Occupation: Computer Software Engineers, Systems Software (15-1032)
Associated Occupation: Computer Hardware Engineers (17-2061)

Work Activities	Exclusivity of Activity
Advise clients regarding engineering problems	67
Analyze technical data, designs, or preliminary specifications	47
Communicate technical information	4
Conduct performance testing	66
Design computer hardware or software interface	87
Design control systems	78
Design electronic equipment	74
Design hardware or software systems	92
Develop computer performance standards	87
Develop or maintain databases	30
Develop tables depicting data	33
Evaluate computer system user requests or requirements	81
Evaluate prototype computer software systems	89
Follow data security procedures	77
Follow data storage procedures	75
Follow statistical process control procedures	73

Make presentations	13
Prepare technical reports or related documentation	22
Provide technical computer training	82
Read blueprints	10
Read manufacturing outlines for electronic products	84
Read schematics	34
Read technical drawings	7
Recommend purchase, repair, or modification of equipment	82
Resolve engineering or science problems	46
Test computer programs or systems	78
Understand detailed electronic design specifications	70
Understand engineering data or reports	48
Use computer networking technology	81
Use computer programming language	82
Use computers to enter, access or retrieve data	3
Use knowledge of mainframe computers	78
Use project management techniques	47
Use scientific research methodology	21
Use spreadsheet software	18

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 71

Focus Occupation: Computer Software Engineers, Systems Software (15-1032)
Associated Occupation: Computer Hardware Engineers (17-2061)

Tools and Technologies	Exclusivity
Business function specific software	1
Computers	1
Content authoring and editing software	1
Data management and query software	1
Development software	4
Electronic and communication measuring and testing instruments	14
Industry specific software	1
Network applications software	1
Operating environment software	12

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.